A Simple Quality Improvement Initiative:
Generating a Computerized Medication Record for Patients

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As part of my summer internship with Horizon Health Network in Fredericton NB, I was able to participate in several medication safety and quality improvement initiatives. One of the pilot projects that I was involved with allowed me to manage medication therapy in collaboration with patients, caregivers and other health care providers, for patients leaving the hospital on a weekend pass. CSHP 2015 describes Medication Management as a broad range of professional activities that can include providing resources designed to enhance patient adherence with his/her therapeutic regimens. This pilot project supports CSHP 2015's goal to increase the extent to which pharmacists help individual hospital inpatients achieve the best use of medications and in particular, Objective 1.3 "In 90% of hospitals, pharmacists manage medication therapy for inpatients with complex and high-risk medication regimens in collaboration with other members of the healthcare team."[1]

I am a strong advocate for the use of technology in patient safety initiatives. This project also coincides with CSHP 2015's goal to increase the extent to which hospitals and related healthcare settings apply technology effectively to improve the safety of medication use.[1]

By increasing medication safety and understanding, patients may be less likely to return to the hospital with adverse effects due to non-adherence or administration errors. A study published in 2004 showed that approximately 25% of patients in the hospital experienced an adverse effect (AE) after hospital discharge.[2] They estimated that around 50% of the AEs were preventable or ameliorable and 72% of the AEs were adverse drug events.[2] Another study published in 2011 showed that patients presenting to the emergency room with an adverse drug event resulted in greater health services utilization and costs compared with patients presenting for other reasons.[3] A quality improvement initiative as simple as the one described below has the potential to improve patient safety by reducing adverse effects and therefore health care utilization and costs.

Computer Generated Medication Record – Pilot Project

Background

When patients at the Dr. Everett Chalmers Regional Hospital (DECRH) in Fredericton, NB are sent home on a weekend leave of absence, they are provided with a supply of medications from the hospital pharmacy. To help them manage their medications at home, a nurse may provide the patient with a hand-written medication record using information from the nursing medication administration record (MAR). Often these records are made before the medications are sent up from the pharmacy, so the brand or generic name used on the medication record does not always match up with the name on the medication bottle. This process is time-consuming for nurses and has the potential for transcription errors. Standardization of the medication record is a minor quality improvement initiative which was undertaken by pharmacy services in collaboration with information services and nursing.

Primary Objectives

1. Develop a Computer Generated Medication Record to help patients correctly administer medication during a leave of absence from the hospital.
2. Evaluate the Computer Generated Medication Record by surveying nurses and patients when they return from a leave of absence.

Secondary Objectives

1. Reduce nursing time spent manually transcribing medication information onto medication records.

Methods

The pilot project was carried out on a 25 bed rehabilitation unit where patients routinely go home on a weekend leave of absence prior to discharge. A leave of absence allows the patients and their caregivers to determine how well they are able to manage at home and if they are ready for discharge. Medication management is an important component of the discharge plan and a leave of absence helps identify any issues or concerns that may arise.

The DECRH dialysis medication record was used as a template for our tool. Information Services redesigned the medication record and tested the computer program. The tool used for the pilot project was approved by the Healthy Aging Program, the Rehab Program, and the Pharmacy Department.

The pilot project took place over a 5 week period, from June 28, 2013 until July 29, 2013. On Fridays, I printed the medication records for each patient and attached them to their weekend medication bag along with nursing surveys to be completed and returned to pharmacy. I conducted patient interviews on Mondays after the patient had returned to the hospital.

Example of Our Computer Generated Medication Record:

Leave of Absence (Pass Medication)

Leaving on _____ / Returning on _____

Horizon Health Network
Dr. Everett Chalmers Hospital

Medication	Directions & Dose	Morn 7am-9am	Noon 11am-1pm	Eve 4pm-6pm	Bed 8pm-10pm	Reason for using or Special Instruction(s)
1 LEVODOPA/CARBIDOPA 100/25	TAKE 1 TABLET (1 TAB) FIVE TIMES DAILY AT 6 AM, 10 AM, 2 PM, 6 PM, AND 10 PM					
2 METOCLOPRAMIDE 10 MG	TAKE 1 TABLET (10 MG) THREE TIMES DAILY BEFORE MEALS AND AT BEDTIME					
3 PARoxetine 20 MG	TAKE 1 TABLET (20 MG) ONCE DAILY					
4 RANITIDINE 150 MG	TAKE 1 TABLET (150 MG) TWICE DAILY					
5 ZOPICLONE 7.5 MG	TAKE 1 TABLET (7.5 MG) AT BEDTIME					
6						
7						
8						
9						
10						
11						

By fitting your medications around your daily schedule, you can decrease the risk of forgetting to take them.

Prepared by _____   Checked by _____

KEEP TRACK OF SIDE-EFFECTS YOU EXPERIENCE SO YOU CAN REPORT THEM TO YOUR DOCTOR
—— Last page of report ——

Results

Results of the nursing and patient surveys conducted are presented below.

Nursing Survey Results	Yes (%)	No (%)	N/A (%)
1) Did you review the medication record with your patient before they left on pass?	100	0	0
2) Was the information on the Medication Record easy to understand?	100	0	0
3) Was the Medication Record complete?	71	25	4
4) If they were taking medications not provided by the hospital pharmacy, was the information added to the Medication Record?	33	17	50
5) Do you think this tool improves patient care?	92	8	0
6) Does the computer generated Medication Record reduce your workload?	79	21	0
7) Would you recommend that other nursing units use this tool?	96	4	0
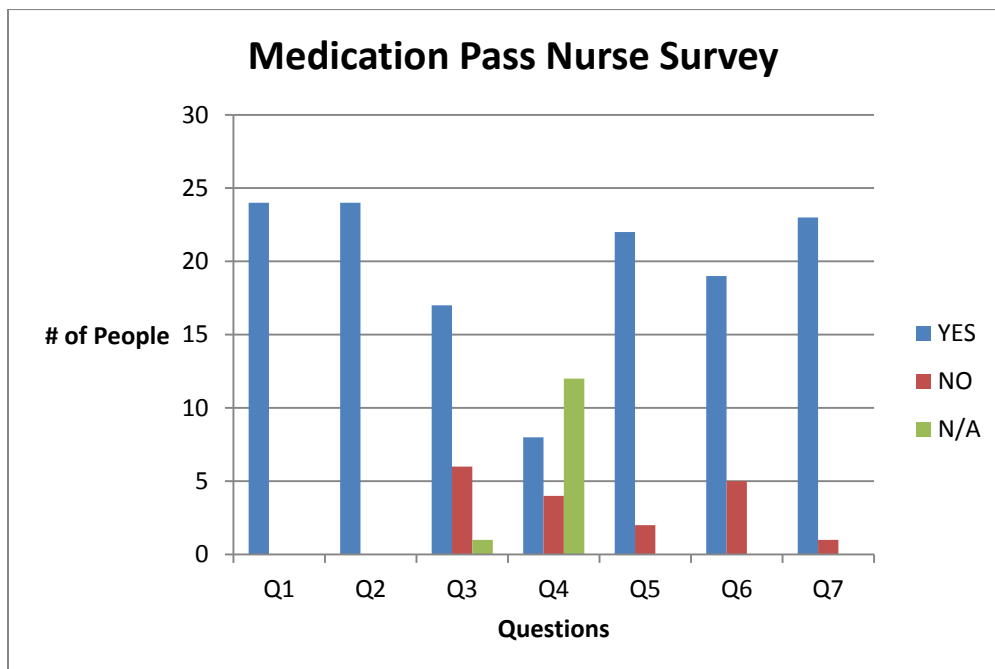
Patient Survey Results	Yes (%)	No (%)	N/A (%)
1) Did someone review the Medication Record with you before you left the hospital?	**87.5**	12.5	0
2) Was the information on the Medication Record easy to understand?	**87.5**	12.5	0
3) Was the Medication Record complete?	**100**	0	
4) Were you taking medications not provided by the hospital pharmacy? If yes: was this information added to the Medication record?	**0**	25	75
5) Do you think this tool was helpful?	**100**	0	0
6) Did it help you remember to take your medications at the right time?	**100**	0	0
7) Would you recommend this tool to other people?	**100**	0	0

Medication Pass Patient Survey
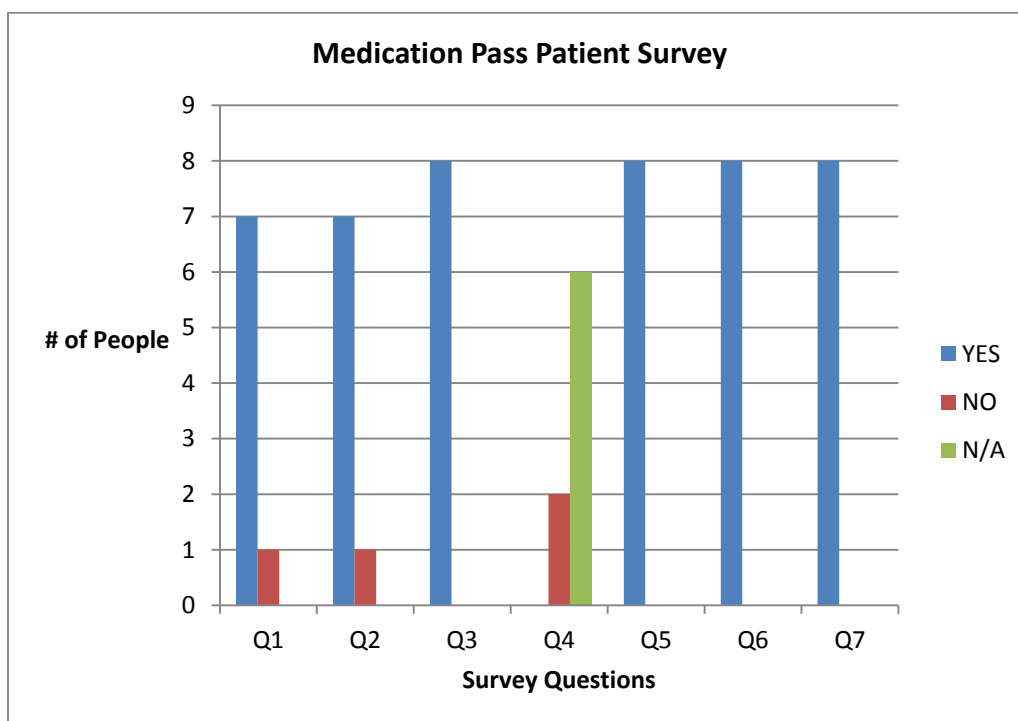
*Thirty-two medication records were printed during the five week project period. A total of 7 patients and 1 caregiver were interviewed and a total of 24 nursing surveys were returned to us. Patients were not interviewed more than once.

Discussion

We received a lot of constructive feedback from the nursing/patient surveys. Many of the suggestions made are being considered for improvements on the medication record. In particular, we would like to consider:

- Providing brand names as well as generic names for benefit of patients and nurses
- Encouraging nurses to include the "indication for use" to further help patients manage their medications. We may also include a description of the pill.
- Creating a checklist for a step-by-step process that the nurses can follow. This can include a reminder to check for non-formulary medications.

It is reasonable to suggest that this tool reduced medication errors and discrepancies for patients going home on a leave of absence; however we were not able to evaluate this outcome in our pilot project.

We still need to evaluate the feasibility of having a pharmacy technician print and attach the medication records each week. In order to continue to provide this service to our patients, we are working with Information Services to make this tool available from the order entry screen on MediTech so that nurses/pharmacists will be able to print the medication records on demand.

Conclusion

This pilot project provided us with valuable feedback that can be used to improve our medication record tool and to further improve care for our patients at the DECRH, while reducing workload for nurses, and reducing or preventing medication pass errors and discrepancies.

References

1. Canadian Society of Hospital Pharmacists. (2008). CSHP Goals and Objectives for Pharmacy Practice in Hospitals and Related Healthcare Settings to Be Achieved by 2015. Accessed online August 19th, 2013

2. Forster AJ, Clark HD, Menard A, et al. Adverse events among medical patients after discharge from hospital. *CMAJ* 2004; 170:345-9.

3. Hohl, C. M., Nosyk, B., Kuramoto, L., Zed, P. J., Brubacher, J. R., Abu-Laban, R. B., . . . Sobolev, B. (2011). Outcomes of emergency department patients presenting with adverse drug events. *Annals of Emergency Medicine, 58*(3), 270-279.e4. doi: 10.1016/j.annemergmed.2011.01.003; 10.1016/j.annemergmed.2011.01.003